

WHAT IS CLAIMED IS:

1. For use with network systems that employ packets having an associated priority, a head of line blockage avoidance system, comprising:

m inputs, m numbering at least two, configured to receive said packets;

n packet first-in-first-out buffers (FIFOs), n numbering at least two, each of said packet FIFOs configured to receive at least one of said packets from said m inputs;

a priority summarizer configured to generate a priority summary of said packets within said m inputs and said n packet FIFOs; and

a scheduler configured to cause one of said n packet FIFOs to be queued for processing based on said priority summary.

2. The head of line blockage avoidance system as recited in Claim 1 wherein said priority summary indicates which of said n packet FIFOs contains a packet having the highest priority or is to receive said packet having the highest priority from one of said m inputs.

3. The head of line blockage avoidance system as recited in
Claim 2 wherein said priority summary further indicates an order in
which to transmit said at least one of said packets contained
within said n packet FIFOs to a destination FIFO based upon packet
priority.

4. The head of line blockage avoidance system as recited in
Claim 1 wherein each of said m inputs includes a source FIFO
configured to contain at least one of said packets.

5. The head of line blockage avoidance system as recited in
Claim 4 wherein said priority summarizer is further configured to
generate said priority summary of said packets within each of said
n packet FIFOs and said packets within said source FIFO of each of
said m inputs that are to be transferred to said each of said n
packet FIFOs.

6. The head of line blockage avoidance system as recited in
Claim 1 further comprises a destination FIFO and an output, said
destination FIFO interposing said n packet FIFOs and said output,
said scheduler further configured to transfer at least one of said
packets from said one of said n packet FIFOs toward said
destination FIFO for transmission via said output.

7. The head of line blockage avoidance system as recited in
Claim 1 wherein said scheduler is further configured to assign said
associated priority to each of said packets based on a priority
associated with each of said m inputs or a destination.

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8. For use with network systems that employ packets having an associated priority, a method of operating a head of line blockage avoidance system, comprising:

employing m inputs, m numbering at least two, configured to receive said packets;

employing n packet first-in-first-out buffers (FIFOs), n numbering at least three, each of said packet FIFOs configured to receive at least one of said packets from said m inputs;

generating a priority summary of said packets within said m inputs and said n packet FIFOs; and

scheduling a one of said n packet FIFOs to be processed based on said priority summary.

9. The method as recited in Claim 8 wherein said priority summary indicates which of said n packet FIFOs contains a packet having the highest priority or is to receive said packet having the highest priority from one of said m inputs.

10. The method as recited in Claim 9 wherein said priority summary further indicates an order in which to transmit said at least one of said packets contained within said n packet FIFOs to a destination FIFO based upon packet priority.

11. The method as recited in Claim 8 wherein each of said m
inputs includes a source FIFO configured to contain at least one of
said packets.

12. The method as recited in Claim 11 wherein said generating
further comprises generating said priority summary of said packets
within each of said n packet FIFOs and said packets within said
source FIFO of each of said m inputs that are to be transferred to
said each of said n packet FIFOs.

13. The method as recited in Claim 8 further comprising
employing a destination FIFO and an output, said destination FIFO
interposing said n packet FIFOs and said output, said scheduling
further comprises transferring at least one of said packets from
said one of said n packet FIFOs toward said destination FIFO for
transmission via said output.

14. The method as recited in Claim 8 wherein said scheduling
further comprises assigning said associated priority to each of
said packets based on a priority associated with each of said m
inputs or a destination.

15. A crossbar head of line blockage avoidance system that
employs packets having an associated priority, comprising:

m physical interfaces, m numbering at least two;

m inputs, each of said inputs coupled to corresponding ones of
said m physical interfaces to receive said packets;

m outputs that transmit said packet to corresponding ones of
said m physical interfaces, each of said outputs having:

n packet first-in-first-out buffers (FIFOs), n numbering
at least m, each of said packet FIFOs receives at least one of
said packets from said m inputs, and

a destination FIFO interposing said n packet FIFOs and
said output;

a priority summarizer that generates a priority summary of
said packets within said m inputs and said n packet FIFOs within
each of said m outputs; and

a scheduler that causes one of said n packet FIFOs for each of
said m outputs to be queued for processing based on said priority
summary.

16. The crossbar head of line blockage avoidance system as
recited in Claim 15 wherein said priority summary indicates which
of said n packet FIFOs for each of said m outputs contains a packet
having the highest priority or is to receive said packet having the
highest priority from one of said m inputs.

17. The crossbar head of line blockage avoidance system as
recited in Claim 16 wherein said priority summary further indicates
an order in which to process said n packet FIFOs for each of said
m outputs based upon packet priority.

18. The crossbar head of line blockage avoidance system as
recited in Claim 15 wherein each of said m inputs includes a source
FIFO configured to contain at least one of said packets.

19. The crossbar head of line blockage avoidance system as
recited in Claim 18 wherein said priority summarizer generates said
priority summary of said packets within each of said n packet FIFOs
and said packets within said source FIFO of each of said m inputs
that are to be transferred to said each of said n packet FIFOs.

20. The crossbar head of line blockage avoidance system as
recited in Claim 15 wherein said scheduler causes to transfer at
least one of said packets from said one of said n packet FIFOs
toward said destination FIFO for transmission via said output for
each of said m outputs.